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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Lilia P. Burleva, et al

METHOD FOR CHEMICAL  
SENSITIZATION OF SILVER  
HALIDE FOR  
PHOTOTHERMOGRAPHIC USE

Serial No. 10/731,462

Filed 09 December 2003

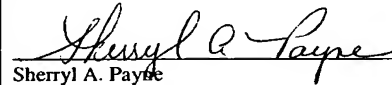
Commissioner for Patents  
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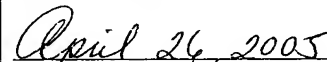
Sir:

Group Art Unit: 1752

Examiner: Chea, Thorl

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

  
Sherryl A. Payne

  
Date

**DECLARATION UNDER 37 C.F.R. 1.132**

I, Sharon M. Simpson, declare that:

(1) I am a co-inventor of the invention described and claimed in the present application, along with Lilia Burleva, Kumars Sakizadeh, and David R. Whitcomb.

(2) I received a Ph.D. degree in Chemistry from Northwestern University in 1983. In the course of my graduate studies, I was the author or co-author of 4 publications during that research that were published during 1983 to 1985. In addition, I carried out undergraduate research at Williams College from 1977 to 1979, and was the author or co-author of one publication based on my research work.

(3) From December, 1982 to July 1996, I was employed by 3M Company; from July 1996 to December 1998, I was employed by Imation Corporation; and from December 1998 to the present, I have been employed by Eastman Kodak Company, all in facilities located near St. Paul, Minnesota.

(4) During my employment with 3M Company, Imation Corporation, and Eastman Kodak Company, I have been involved in research and development work in the area of imaging science and materials, and particularly in the research and development of photothermographic materials and components thereof including chemical sensitizing chemicals. In the course of that work, I have been an inventor or co-inventor of at least 46 inventions, all of which are the subject of granted U.S. patents, pending U.S. patent applications, or published patent applications in other countries.

(5) In view of this considerable academic and professional technical experience, I can say, with appropriate modesty, that I am a worker having at least ordinary skill in the art to which the present invention pertains, namely the use of certain chemical sensitizing compounds and the preparation of photothermographic emulsions and materials containing same.

(6) I am familiar with the Office Action mailed February 7, 2005 in the prosecution of the present application, the rejections and art cited thereon, and I believe that I understand the Examiner's arguments in support of his rejections of the presently claimed invention.

(7) It is my opinion, not only as a co-inventor but also as one having at least ordinary skill in the art to which the present invention pertains, that the unpatentability rejections are incorrect, particularly as they are based on a combination of U.S. Patent 5,891,615 (Winslow et al.), of which I am a co-patentee, with U.S. Patents 3,895,951 (Riester et al.) and 3,457,075 (Morgan et al.), and additionally with U.S. Patent 6,440,649 (Simpson et al.) of which I am the lead patentee.

(8) It is my opinion that the presently claimed invention is not taught or suggested by Winslow et al. with any combination of Riester et al., Morgan et al. and Simpson et al. In particular, I believe that the presently claimed invention is not taught or suggested by the combination of Riester et al. with Winslow et al. and that the use of certain diphenylphosphine sulfides called for in our claims is

patentable over the teaching in Riester et al. because the use of our diphenylphosphine sulfides provides unexpected results over the preferred phosphine sulfides taught in Riester et al.

(9) As further evidence of unexpected results, I carried out comparative experiments that are described in Example 8 of co-pending and commonly assigned U.S. Serial No.10/731,251 (filed 12/9/03 by myself with Lilia Burleva and Kumars Sakizadeh). While the invention described and claimed in that copending application is directed to the use of a combination of Au(III) compounds and diphenylphosphine sulfides as chemical sensitizers in photothermographic materials, the Example 8 comparative results are also cogent as evidence for patentability of the presently claimed invention. The amount and type of Au(III) compound was kept constant in both the inventive and comparative materials, so the differences in sensitometric data result from the different phosphine sulfides only.

As described in Example 8 (pages 102-103) of my copending U.S. Serial No. 10/731,251, the use of a diphenylphosphine sulfide compound provided significantly better speed and image contrast in photothermographic materials compared to the use of a comparative triphenylphosphine sulfide that is outside the scope of the present invention. Thus, our choice of phosphine sulfide was critical to achieving the unexpected results. A copy of Example 8 with the data in TABLE XIV is attached to this Declaration as and Exhibit for the Examiner's convenience.

I believe that these unexpected results are not predictable from any teaching in the cited references, and in particular Riester et al., because Riester et al. broadly describes the useful "intensifying" compounds as having hundreds of possible aliphatic, cycloalkyl, aralkyl, aryl, or heterocyclic "R" substituents (Cols. 1-2). Riester et al. gives no preferences for the "R" substituents but lists 87 examples of compounds "particularly suitable for intensifying the sensitization effect of silver halide emulsion layers achieved with merocyanines" as spectral sensitizing dyes (Col. 3, line 15 to Col. 10, line 33). Compound 1 in Riester et al. is triphenylphosphine sulfide that was tested in the comparative example of Example 8 of the my co-pending application. Compound 1 was used in Examples 1, 3, 4, 5, 6, 7, and 8 of Riester et al. and in my opinion as one skilled in the art, it

is clearly the preferred phosphine sulfide in Riester et al. from its predominance in the examples.

Thus, it is my opinion that not just any phosphine sulfide will be useful as a chemical sensitizer to obtain increased speed in photothermographic materials, and as one skilled in the art, I am not directed to the specific diphenylphosphine sulfides used in the presently claimed invention from the hundreds of different compounds taught in Reister et al.

(10) That all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true. These statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 4/20/2005

Sharon M. Simpson  
Sharon M. Simpson

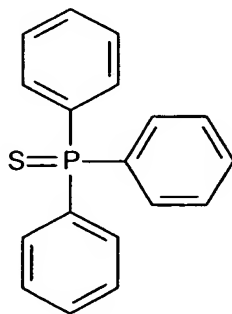
## EXHIBIT: EXAMPLE 8 OF COPENDING USSN 10/731,251

### Example 8

This example compares photothermographic materials incorporating known chemical sensitizing compound C-1 used in combination with compound Au-2 with compound PS-1 used in combination with compound Au-2.

Photothermographic materials were prepared, imaged and developed as described in Example 1 except that 7.9 ml of a solution of  $1.53 \times 10^{-4}$  moles of compound PS-1 in 8.64 g of a 1:1 mixture of MEK/MeOH and 1.77 g of Antifoggant-A in 10.00 g of MEK was used in the photothermographic emulsion formulation, and no Antifoggant-A was added to the topcoat formulation. For comparison, 7.9 ml of a solution of  $1.53 \times 10^{-4}$  moles of compound C-1 in 8.64 g of a 1:1 mixture of MEK/MeOH was added in place of compound PS-1. The silver coating weights were from 2.36 to 2.38 g/m<sup>2</sup>.

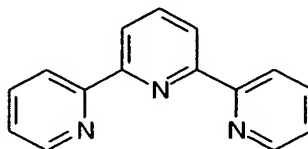
The sensitometric results, shown below in TABLE XIV, demonstrate the increase in speed when the PS compounds of this invention are formulated along with gold(III) compounds when compared with compounds such as C-1 formulated along with gold(III).

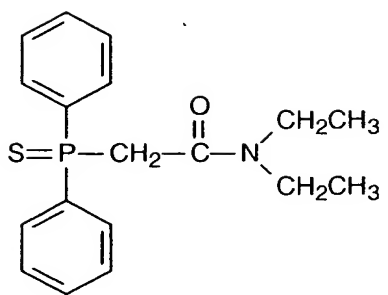


(C-1)

Au-2 is AuL'Cl<sub>3</sub> wherein

L' is





(PS-1)

TABLE XIV

	Moles of C-1	Moles of PS-1	Au-2 used	Dmin	SP-2	AC-1	AC-2
<b>Comparative 8-1</b>	1.12 x 10 <sup>-4</sup>	None	Yes	0.31	3.02	2.79	2.03
<b>Invention 8-1</b>	None	1.12 x 10 <sup>-4</sup>	Yes	0.34	4.34	3.55	3.03